

TRAFFIC SPEED REPORT
NO. 69

JUNE 1960
NO. 12

Joint
Highway
Research
Project

PURDUE UNIVERSITY
LAFAYETTE INDIANA

by

N. JOUZY

Progress Report
TRAFFIC SPEED REPORT NO. 69

TO: K. B. Woods, Director
Joint Highway Research Project

June 8, 1960

FROM: H. L. Michael, Assistant Director
Joint Highway Research Project

File: 8-3-3

"Traffic Speed Report No. 69" authored by Neddy Jouzy, Graduate Research Assistant on our staff is attached. This progress report on the continuing study of speed trends has been conducted under the supervision of Professor H. L. Michael.

The results of this study indicate that speeds of both passenger cars and trucks were slightly less during the period of the study than they were in August 1959.

Copies of this report after acceptance by the Board will in addition to the normal distribution also be forwarded to the Indiana State Police, Office of Traffic Safety, the Traffic Engineering Department of the State Highway Department, and the Bureau of Public Roads.

The report is submitted for the record and for release for distribution.

Respectfully submitted,

Harold L. Michael

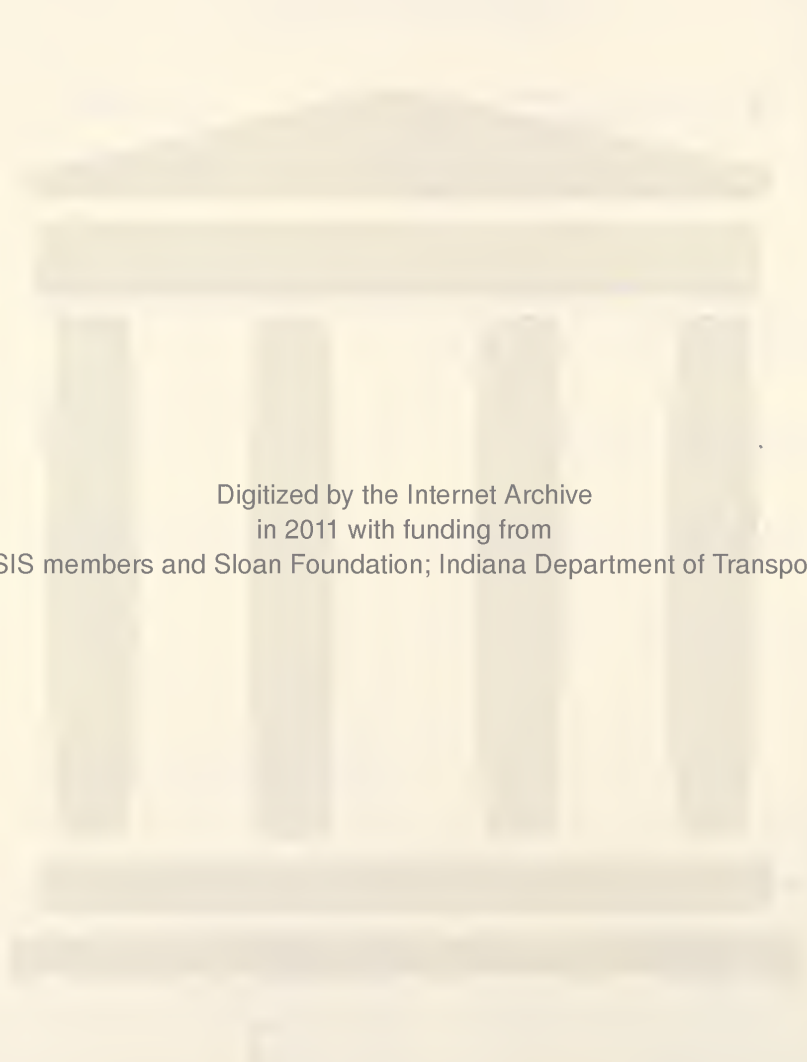
Harold L. Michael, Secretary

HLM:kmc

Attachment

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Progress Report

Traffic Speed Report No. 69

by

Neddy Jousy
Graduate Research Assistant

Joint Highway Research Project
File: 8-3-3
Project: C-36-100

Purdue University
Lafayette, Indiana

June 8, 1960

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TRAFFIC SPEED REPORT NO. 69

This report covers spot speed observations made during the months of March and April 1960. All observations were made of free moving vehicles on level tangent sections of rural highways. The locations of the spot stations were the same as for previous studies and are as follows:

1. U. S. 52 - 1.0 mile south of south junction of S. R. 28 -
(Dual Lanes)
2. U. S. 52 - 1.0 mile west of Klondike (Dual Lanes)
3. U. S. 52 - 2.2 miles northwest of Templeton (2 lanes)
4. U. S. 31 - 7.2 miles north of Perrysburg (2 lanes)
5. S. R. 25 - 0.7 mile south of Americus (2 lanes)
6. U. S. 41 - 1.0 mile north of Baswell (2 lanes)

An Electromatic Radar Speed Meter was used to collect the data for this study. The meter was concealed as part of a rural mailbox and placed close by to the edge of the pavement. It was directed along the highway at a small angle with respect to the direction of traffic so that it was not necessary to make an angle correction to the readings.

The observers concealed themselves from traffic as much as local conditions permitted and it is thus believed that the speeds of the observed vehicles were not influenced by the observer or the equipment.

The radar equipment used will not operate properly if the voltage varies more than minus 1/2 volt or plus 1 volt from the optimum twelve volts. The voltage was therefore checked periodically in the field and maintained within the desired range. Also, correct calibration was maintained by periodically checking it with a 60 mile per hour tuning fork.

A summary of the results of this study, as well as of the last seven studies, is given in Table I. Indiana State law limits the speed of passenger cars and trucks under 5,000 pounds (GVW) to 65 miles per hour. The speed limit of trucks over 5,000 pounds (GVW) is 50 miles per hour on all highways except that on four-lane highways, which have a median strip of at least twenty feet in width, the speed limit is 55 miles per hour. This new speed limit for trucks has been in effect since about May 1959. However, some, but not all, truck speed limit signs have been posted along the state highways to reflect this change. It can be assumed though, that by now a large portion of the truck drivers are aware of this speed limit change.

Truck speeds are shown in the tables for three groups: light trucks, heavy trucks, and all trucks. Also, it is noted whether the highway is 2-lane or 4-lane. All 4-lane observation stations were on highways with a median of greater than twenty feet. Since weights were not taken in this study, light trucks (less than 5,000 pounds) were considered to be only panel trucks and pick-up trucks. All other types of trucks were classified as heavy (over 5,000 pounds).

The passenger car data were also classified into three groups: Indiana, out of state, and all passenger cars. The classification was determined by observing the license plate on each passenger car passing the observation station.

So that an easy comparison can be made between the results of the present study and the last previous study, the results from each speed station for both studies are tabulated in Tables II through VII.

Average and 85th percentile speeds were computed for each vehicle group from the sample of vehicles taken at each study site. A comparison

is then made with the speeds of the last study in July and August of 1959, and the differences in speeds are briefly discussed.

The average speed for all passenger cars decreased by 1.4 miles per hour since the last study (August 1959) while average speeds for all trucks decreased 1.1 miles per hour. Indiana passenger cars decreased their average speed on 2-lane highways by 2.3 miles per hour while their average speed on 4-lane highways decreased by 0.3 miles per hour. Out of state passenger cars decreased their average speed on 2-lane highways by 0.5 miles per hour while their average speed on 4-lane highways decreased by 0.9 miles per hour.

The average speed for light trucks decreased by 1.2 miles per hour on 2-lane highways and increased 2.4 miles per hour on 4-lane highways.

For heavy trucks the average speed decreased 0.8 miles per hour on 2-lane highways and decreased 5.8 miles per hour on 4-lane highways.

The 85th percentile speed for all passenger cars decreased by 0.5 miles per hour.

Trend information on the average speed of passenger cars and trucks is shown in Table 1 and Figure 7 and 8. Table 1 is a summary of Spot Speed Observations on Indiana Highways for the last eight studies since February 1956. This summary of Spot Speed lists the observations for Two-lane Highways, Four-lane Highways and All Highways for both passenger cars and trucks.

Figure 7 is a graph showing rural speed trends from 1942-1960. The speed trends shown are for passenger cars, light trucks and heavy trucks.

Figure 8 is a graph showing trends in percentile speeds and speed differential from 1949 - 1960. The percentile speeds shown are for both

passenger cars and heavy trucks. The speed differential is the difference between the 85th percentile of passenger cars and 15th percentile of heavy trucks.

TABLE I

SUMMARY OF SPOT SPEED OBSERVATIONS
ON INDIANA HIGHWAYS

(Free-Moving Vehicles on Level, Tangent Sections)

		Passenger Cars				Trucks		
		Ind Mean	Non-Ind Mean	All Mean	All 85 per	Light Mean	Heavy Mean	All Mean
Two-Lane Highways	Feb. '56	54.9	58.0	55.9	63.2	47.1	43.2	44.4
	Aug. '56	55.0	56.3	55.5	63.4	50.6	45.5	46.6
	May '57	55.6	59.1	56.9	64.0	50.2	44.8	46.1
	Aug. '57	55.5	56.7	55.9	62.1	51.7	45.8	47.3
	Aug. '58	54.3	56.3	55.0	61.7	53.0	46.3	47.8
	Mar. '59	55.5	57.7	56.1	61.9	50.4	45.4	46.3
	Aug. '59	55.6	55.3	55.9	63.2	49.7	46.7	48.0
	Mar. '60	53.27	54.8	53.7	61.2	48.5	45.9	46.6
Four-Lane Highways	Feb. '56	58.1	60.1	58.7	65.7	47.8	45.2	45.8
	Aug. '56	57.4	58.8	58.2	66.8	49.6	46.0	47.4
	May '57	59.9	63.6	61.0	69.0	52.2	46.0	47.9
	Aug. '57	57.5	59.9	58.5	64.8	52.0	46.6	47.6
	Aug. '58	58.0	59.6	58.7	65.0	54.3	49.0	50.0
	Mar. '59	58.2	61.7	59.0	64.9	53.6	47.0	48.4
	Aug. '59	58.4	60.1	59.1	64.5	50.0	53.1	49.5
	Mar. '60	58.1	59.2	58.4	65.0	52.4	47.3	48.4
All Highways	Feb. '56	56.0	58.6	56.8	63.8	47.3	44.0	44.9
	Aug. '56	55.7	57.3	56.4	64.5	50.2	45.6	46.9
	May '57	57.2	60.3	58.3	66.0	50.9	45.2	46.6
	Aug. '57	56.2	58.3	56.9	63.2	51.8	46.1	47.4
	Aug. '58	55.7	57.9	56.5	63.1	53.4	47.5	48.7
	Mar. '59	56.6	59.0	57.2	63.1	51.5	45.9	47.0
	Aug. '59	56.5	58.4	57.4	63.5	50.6	47.8	48.6
	Mar. '60	55.6	57.1	56.0	63.0	50.2	46.6	47.5

II

1 Mile south of south junction of US 52 & SR 28
Station

Surface 4 lane divided - 24' bituminous concrete

Weather Cloudy - windy
 Last Previous Observation (Speed Report No. 67)
 Date Aug. 3, 1959
 Time 8:50 - 10:50 AM

Date April 3; April 6; April 8, 1960

Time	Time	Time
2:15 - 2:55 PM	1:35 - 3:30 PM	2:45 - 4 PM
8:50 - 10:50 AM		

PASSENGER CARS				TRUCKS				BUSSSES			
All				All				Less than 5000 pounds or more			
Indiana		Non-Indiana		Indiana		Non-Indiana		Indiana		Non-Indiana	
Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
OBSERVATION											
No. of Vehicles Obs.											
455	524	218	339	237	185	50.4	48.8	12	33	70	126
Ave. Speed (m.p.h.)											
60.4	60.3	59.7	60.2	61.1	60.5	82	81.7	55.1	53.6	49.6	47.5
Ave. Speed (m.p.h.)											
96.3	96.0	93.6	95.5	98.7	96.0	54.8	50.0	83.3	70	55.7	44.0
50 m.p.h.											
85.3	84.0	80.1	81.4	89.5	88.0	20.7	16.0	66.7	36	12.9	11.0
55 m.p.h.											
61.3	61.0	57.3	59.0	65.0	65.0	6.1	7.0	25.0	30	2.9	1.0
60 m.p.h.											
24.8	19.0	22.0	20.0	27.4	18.0	0.0	3.0	0.0	15	0.0	0.0
65 m.p.h.											
5.3	6.0	5.0	7.0	5.5	4.0	0.0	2.5	0.0	12	0.0	0.0
70 m.p.h.											
1.3	2.0	1.4	2.0	1.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0
75 m.p.h.											
No. of Vehicles Obs.											
239	319	110	216	129	103	44	80	5	23	39	57
Ave. Speed (m.p.h.)											
60.7	60.2	59.4	60.0	61.9	60.5	49.7	50.7	59.6	55.6	48.4	48.7
Max. Speed (m.p.h.)											
—	—	73	84	76	80	—	—	64	74	58	60
State or Type											
—	—	—	—	—	—	—	—	—	—	—	—
Min. Speed (m.p.h.)											
—	—	40	40	43	40	—	—	53	30	39	33
State or Type											
216	205	108	123	108	82	38	79	7	10	31	69
No. of Vehicles Obs.											
60.1	60.5	59.9	60.4	60.3	60.5	51.3	46.9	51.9	49.2	51.1	46.5
Ave. Speed (m.p.h.)											
—	—	83	80	76	72	—	—	58	72	60	56
Max. Speed (m.p.h.)											
—	—	—	—	—	—	—	—	—	—	—	—
State or Type											
—	—	34	44	42	38	—	—	36	36	38	34
Min. Speed (m.p.h.)											
—	—	—	—	—	—	—	—	—	—	—	—
State or Type											

SPEED DATA

Weather Cloudy
 Date July 10, 1959
 Time 2:45 - 5:10 PM

[illegible]

IV

Surface 2 Lane 22' Bituminous

Date March 25, 1960
Time 3:30 - 5:00 PM

PASSENGER CARS										TRUCKS						BUSES					
All										All						5000 pounds or more		All			
Indiana										Non-Indiana						Less than 5000 pounds					
Last Present										Last Present						Last Present		Last Present			
222 157										123 93						7 4		62 37			
No. of Vehicles Obs.										56.5 56.7						56.4 56.4		47.6 47.3		47.9 47.3	
Ave. Speed (m.p.h.)										56.5 56.7						56.7 56.4		47.6 47.3		47.9 47.3	
45 m.p.h.										56.5 56.7						56.7 56.4		47.6 47.3		47.9 47.3	
50 m.p.h.										86.0 92.0						88.6 91.4		84.1 78.1		82.3 78.0	
55 m.p.h.										63.1 61.0						65.9 58.0		48.8 47.8		43.5 46.0	
60 m.p.h.										35.6 42.0						33.3 32.0		5.0 4.2		3.2 3.0	
Exceeding										10.8 9.0						10.6 9.0		0.0 0.0		0.0 0.0	
65 m.p.h.										4.1 3.0						4.1 2.0		0.0 0.0		0.0 0.0	
70 m.p.h.										0.5 0.0						0.0 0.0		0.0 0.0		0.0 0.0	
75 m.p.h.										155 96						91 58		4 2		34 21	
No. of Vehicles Obs.										56.7 57.4						57.0 58.0		47.3 47.3		47.4 47.0	
Ave. Speed (m.p.h.)										56.7 57.4						57.0 58.0		47.3 47.3		47.4 47.0	
Max. Speed (m.p.h.)										74						72		56		54	
State or Type										—						—		—		—	
Min. Speed (m.p.h.)										28						39		50		28	
State or Type										—						48		50		38	
No. of Vehicles Obs.										67 61						32 35		18 3		23 16	
Ave. Speed (m.p.h.)										56.3 55.4						56.0 53.7		47.9 47.9		48.5 47.7	
Max. Speed (m.p.h.)										78						70		56		60	
State or Type										—						—		55		53	
Min. Speed (m.p.h.)										38						42		46		38	
State or Type										—						—		44		40	

Y

Station 7.8 Miles N. of Perrysburg on US 31

Surface 2 Lane 22' Bituminous

Weather Cloudy

Last Previous Observation (Speed Report No. 67)

Date March 29, 1960

Date Aug. 10, 1959

Time 12:45 - 4:15 PM

Time 10:10 AM - 12:40 PM

[illegible]

SPEED DATA

Station 0.7 miles W. Americus on S. R. 25

Surface	2 lana	22' Bituminous	Weather	Fair and Sunny
This Observation		Date	July 16, 1960	
Time		2:45 - 4:20 PM		
Last Previous Observation (Speed Report No. 67)		Date	July 16, 1960	
Time		2:35 - 5:05 PM		

PASSENGER CARS				TRUCKS				BUSSSES			
All				All				5000 pounds or more			
Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more		All	
Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
OBSERVATION											
No. of Vehicles Obs.											
325	344	284	315	41	29	69	96	23	33	46	63
Ave. Speed (m.p.h.)											
54.8	53.9	54.6	53.8	55.8	55.0	48.8	46.7	49.5	48.5	48.0	45.7
Exceeding											
78.8	77.0	78.9	76.5	78.0	83.0	73.9	65.0	73.9	76.0	73.9	59.0
Equaling											
51.7	49.0	49.6	48.0	65.9	52.0	42.0	30.0	52.2	39.0	37.0	25.0
Below											
30.5	21.0	29.6	20.0	36.6	24.0	20.3	6.0	34.8	9.0	13.0	5.0
Exceeding											
8.3	6.0	8.5	6.0	7.3	3.0	2.9	0.0	4.3	0.0	2.2	0.0
Equaling											
3.4	2.0	3.9	2.0	0.0	0.0	1.4	0.0	0.0	0.0	2.2	0.0
Below											
0.6	1.0	0.7	1.0	0.0	0.0	1.4	0.0	0.0	0.0	2.2	0.0
No. of Vehicles Obs.											
136	150	117	134	19	16	33	49	8	9	25	40
Ave. Speed (m.p.h.)											
54.0	54.3	53.6	54.1	56.7	56.1	46.0	45.0	48.0	45.4	45.9	44.9
Max. Speed (m.p.h.)											
—	—	70	79	68	66	—	—	60	53	56	56
State or Type											
—	—	—	—	—	—	—	—	—	—	—	—
Min. Speed (m.p.h.)											
—	—	32	34	40	42	—	—	40	36	36	32
State or Type											
189	194	167	181	22	13	36	47	15	24	21	23
No. of Vehicles Obs.											
55.3	53.7	55.4	53.7	55.0	53.6	51.3	48.4	51.8	49.6	51.0	47.1
Ave. Speed (m.p.h.)											
—	—	88	76	66	63	—	—	65	65	76	55
Max. Speed (m.p.h.)											
—	—	—	—	—	—	—	—	—	—	—	—
State or Type											
—	—	40	36	40	42	—	—	40	37	40	40
Min. Speed (m.p.h.)											
—	—	—	—	—	—	—	—	—	—	—	—
State or Type											



Station 1.0 mile north of Boswell on US 41

Surface 22' Portland Cement Concrete 2-lane

This Observation

Date April 12, 1960

Time 2:45 - 5:00 PM

Weather Warm and Sunny

Last Previous Observation (Speed Report No. 67)

Date Sept. 1, 1959

Time 9:00 - 11:45 AM

OBSERVATION	PASSENGER CARS						TRUCKS						BUSSES			
	All			Indiana		Non-Indiana		All			Less than 5000 pounds			5000 pounds or more		
	Last	Present		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	
No. of Vehicles Obs.	259	255		124	149	135	106	87	104		24	31	63	73		
Ave. Speed (m.p.h.)	57.0	52.6		56.4	51.8	57.6	53.7	46.3	45.8		50.6	47.0	44.6	45.3		
45 m.p.h.	—	—		—	—	—	—	59.8	54.0		83.3	48	50.8	56		
50 m.p.h.	84.6	71		83.1	67.0	85.9	76.5	33.3	31.0		54.2	35	25.4	29		
55 m.p.h.	66.0	42		63.5	38.0	68.9	48.0	8.0	8.0		16.7	19	4.8	3		
60 m.p.h.	43.2	18		41.1	15.0	45.2	23.0	3.4	4.0		12.5	13	0.0	0.0		
65 m.p.h.	13.1	4		11.2	3.0	14.8	5.0	2.2	2.0		8.3	6	0.0	0.0		
70 m.p.h.	4.2	2		4.0	1.0	4.4	2.0	0.0	2.0		0.0	6	0.0	0.0		
75 m.p.h.	0.4	0.0		0.8	0.0	0.0	0.0	0.0	1.0		0.0	3	0.0	0.0		
No. of Vehicles Obs.	129	148		67	76	62	72	37	47		11	15	26	32		
Ave. Speed (m.p.h.)	57.3	53.5		56.6	52.5	58.1	54.6	46	44.6		52	47.2	43.4	43.5		
Max. Speed (m.p.h.)	—	—		77	70	74	72	—	—		69	76	56	58		
State or Type	—	—		—	—	—	—	—	—		—	—	—	—		
Min. Speed (m.p.h.)	—	—		35	34	40	38	—	—		40	36	30	30		
State or Type	—	—		—	—	—	—	—	—		—	—	—	—		
No. of Vehicles Obs.	130	107		57	73	73	34	50	57		13	16	37	41		
Ave. Speed (m.p.h.)	56.8	51.3		56.2	51.1	44	51.7	46.5	46.8		49.5	46.9	45.5	46.7		
Max. Speed (m.p.h.)	—	—		70	70	74	64	—	—		60	60	55	56		
State or Type	—	—		—	—	—	—	—	—		—	—	—	—		
Min. Speed (m.p.h.)	—	—		36	32	40	38	—	—		39	36	34	34		
State or Type	—	—		—	—	—	—	—	—		—	—	—	—		

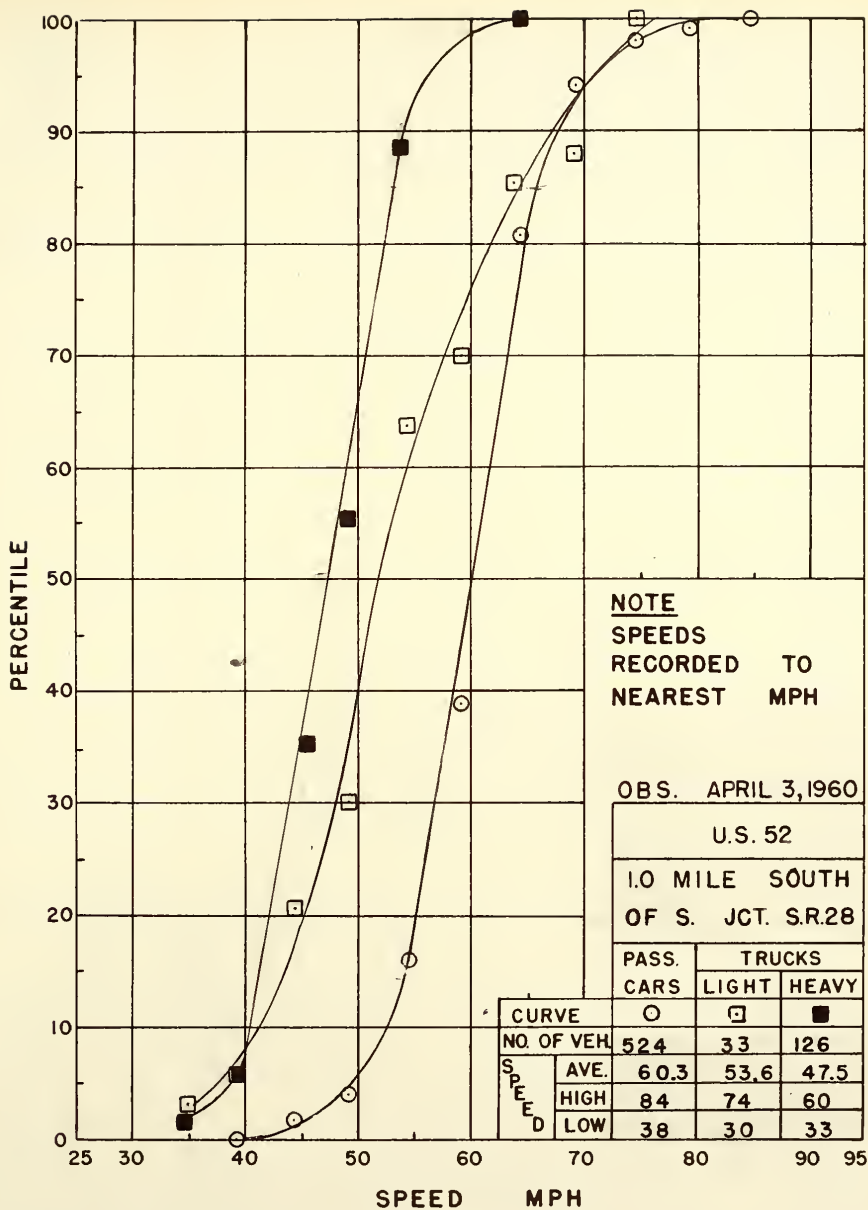


FIGURE 1

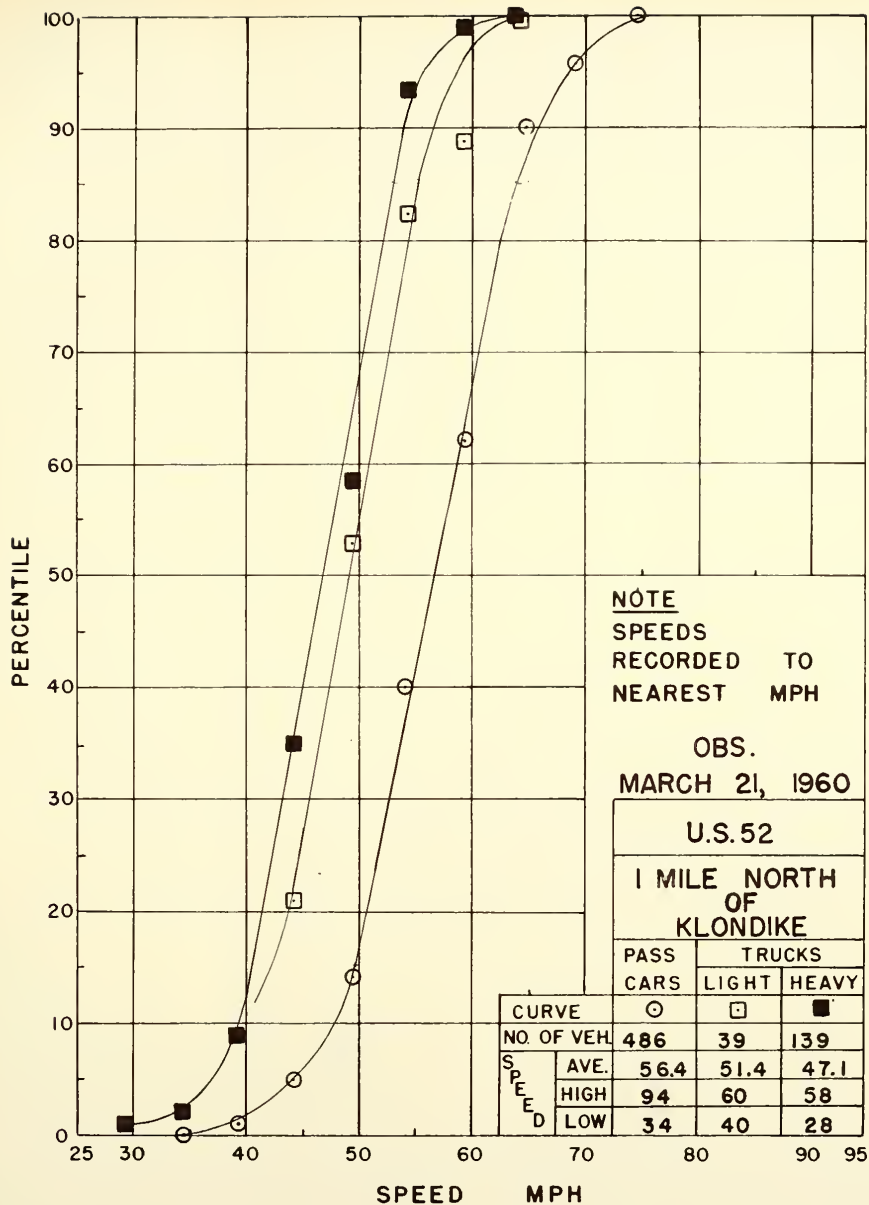


FIGURE 2

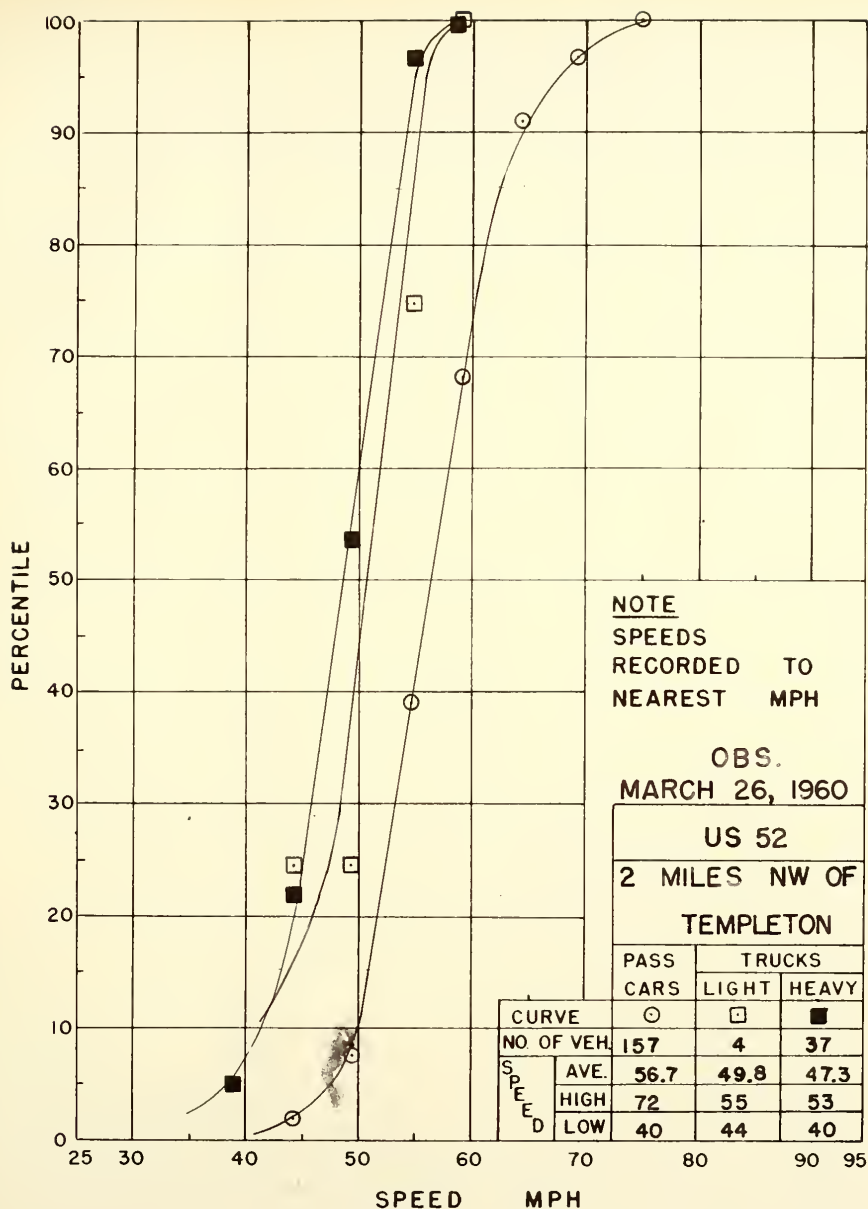


FIGURE 3

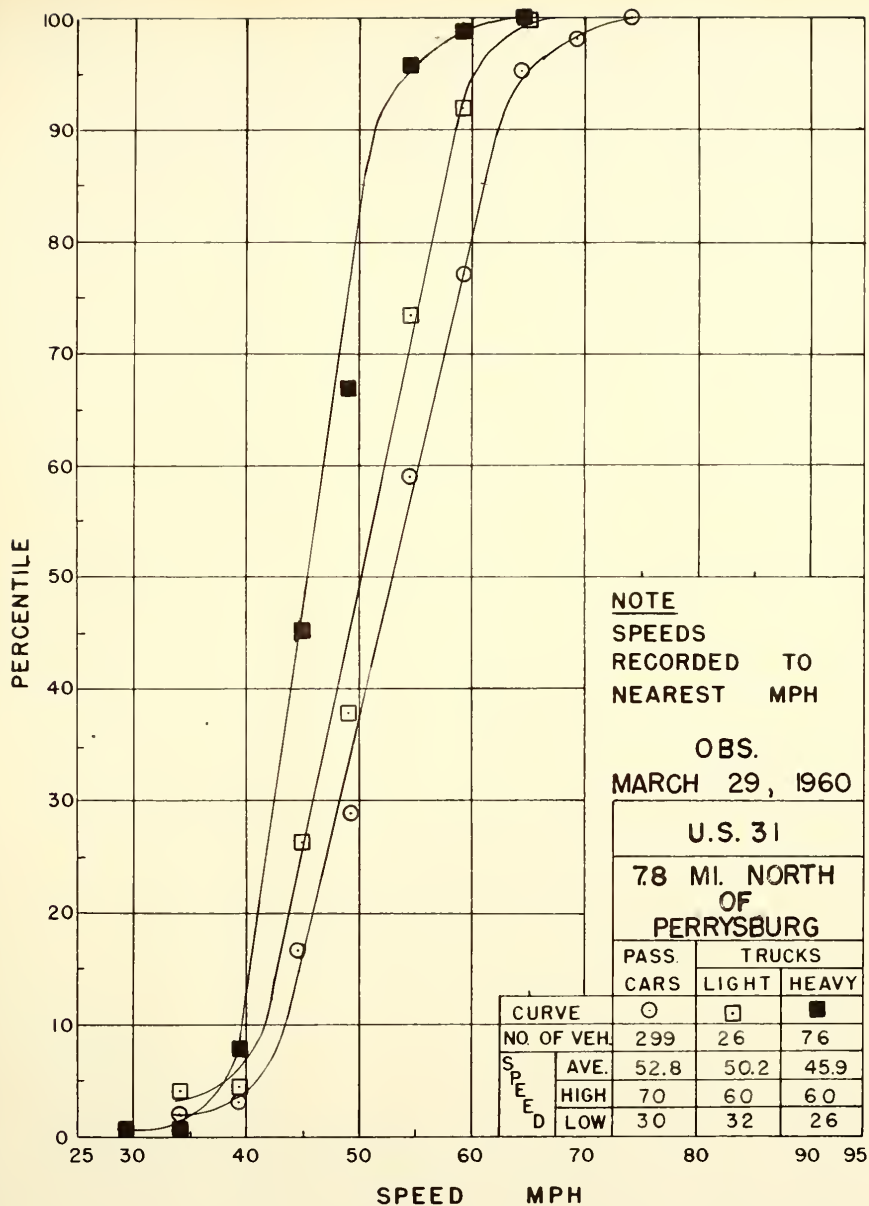


FIGURE 4

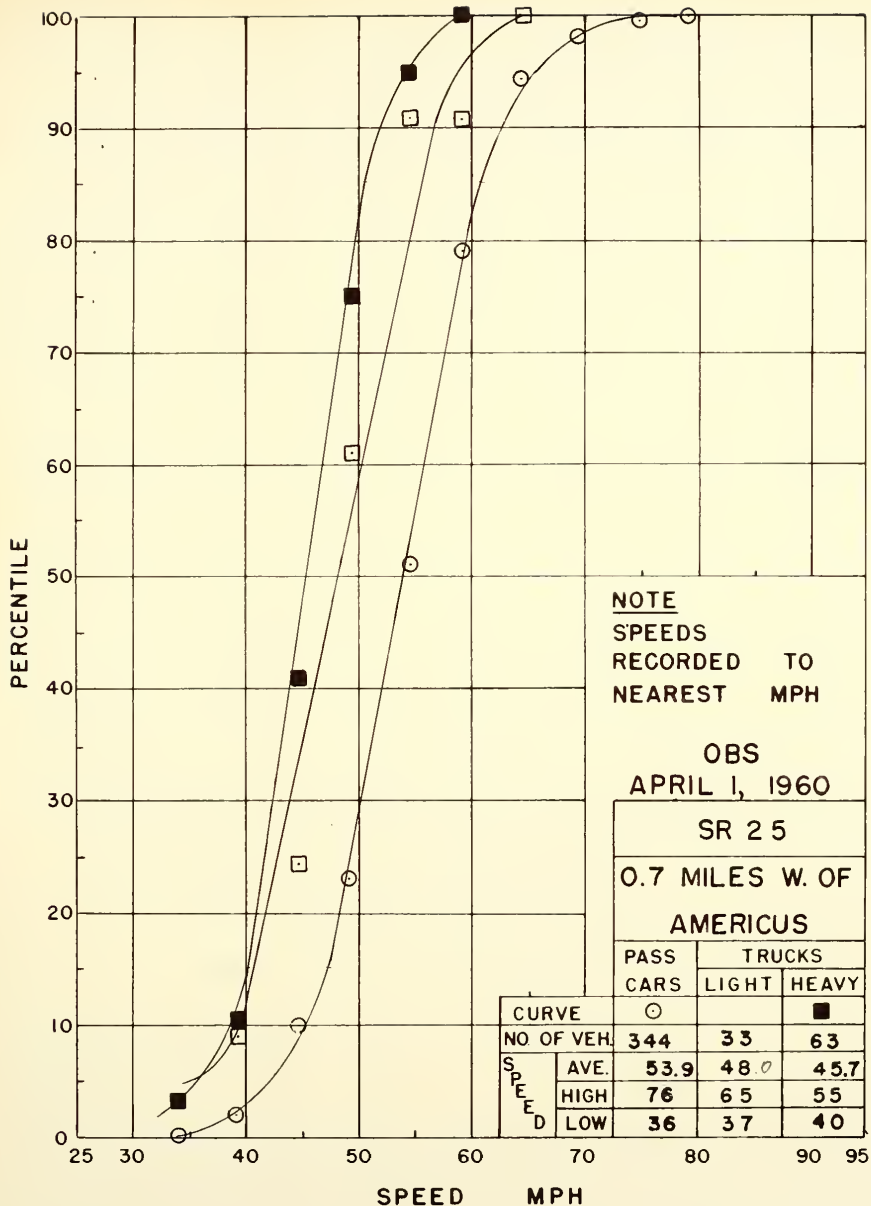


FIGURE 5

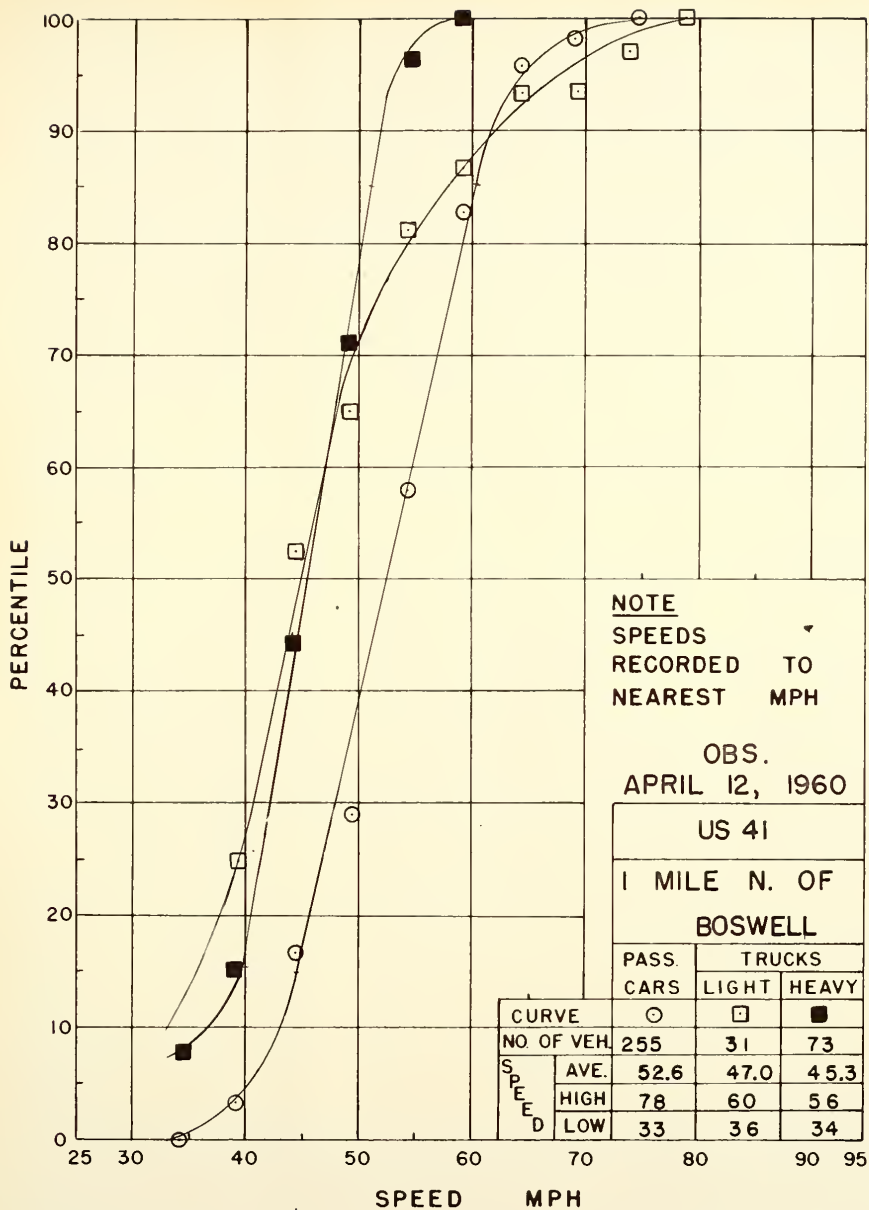


FIGURE 6



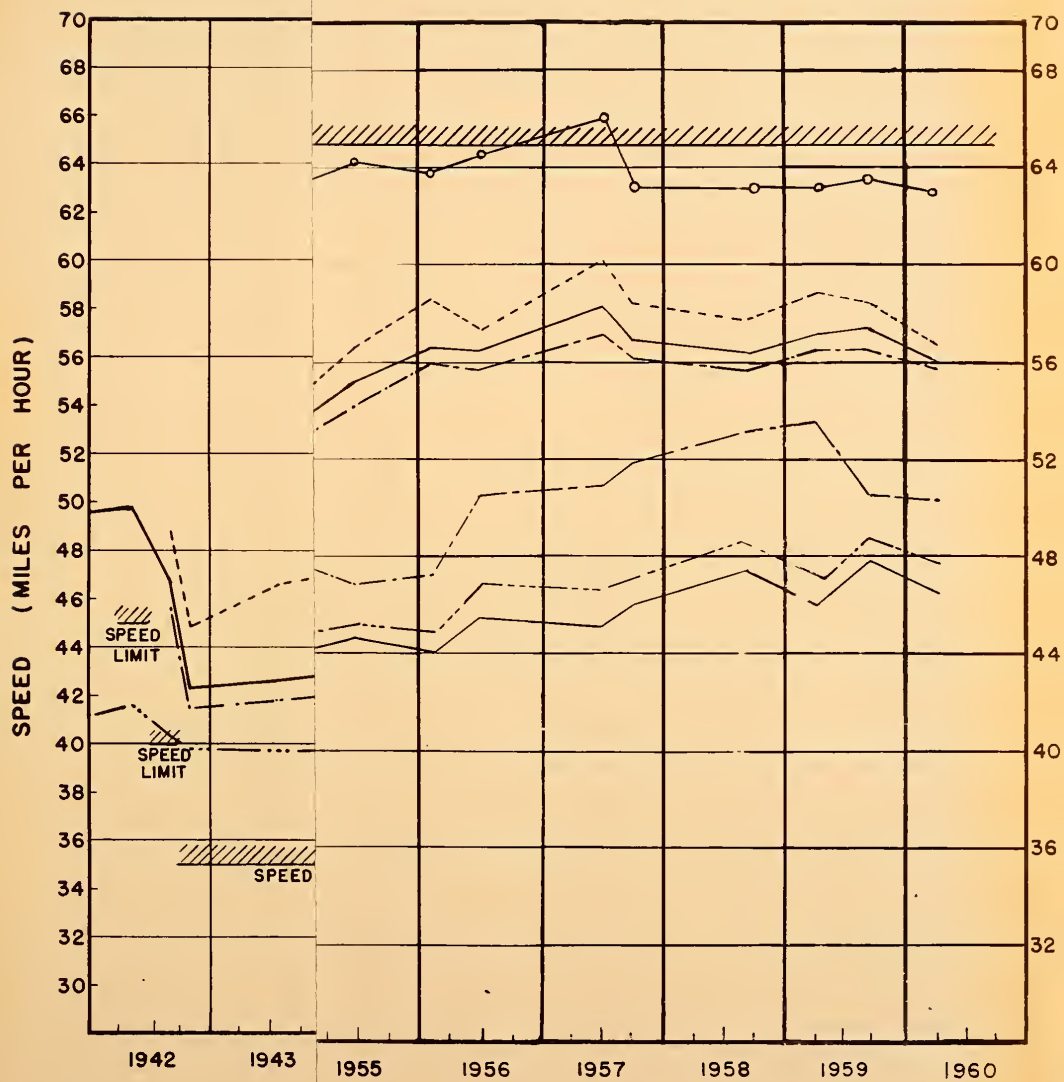
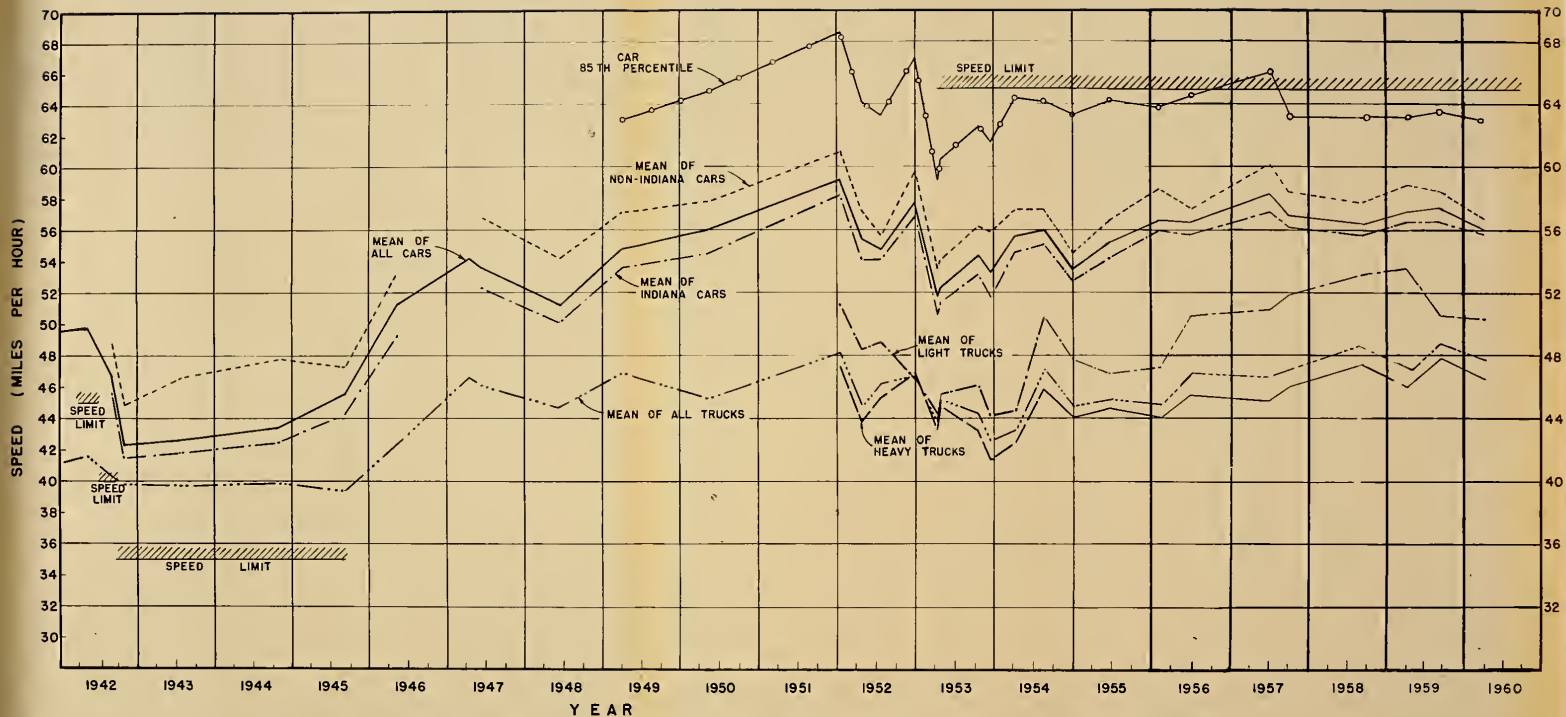
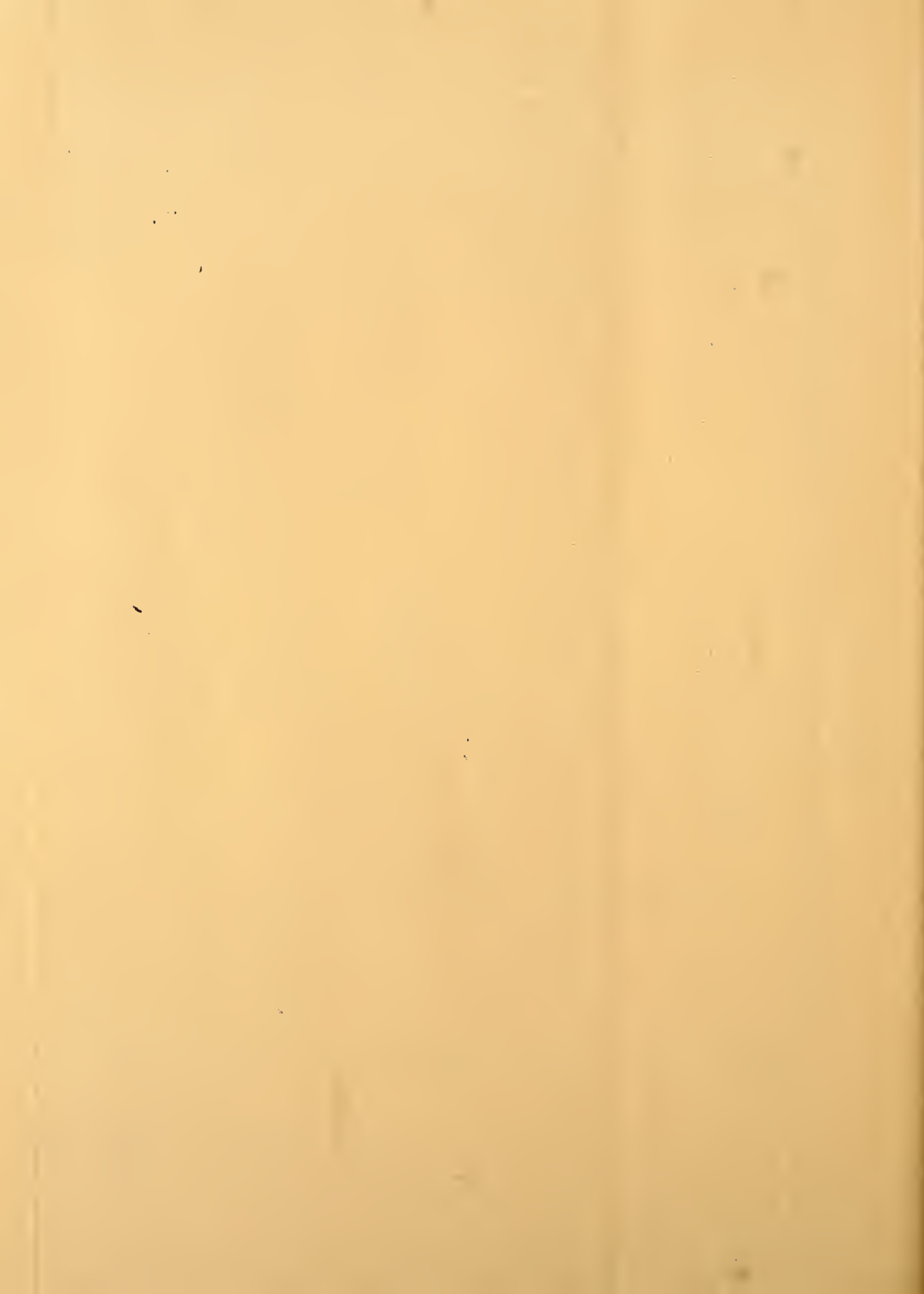
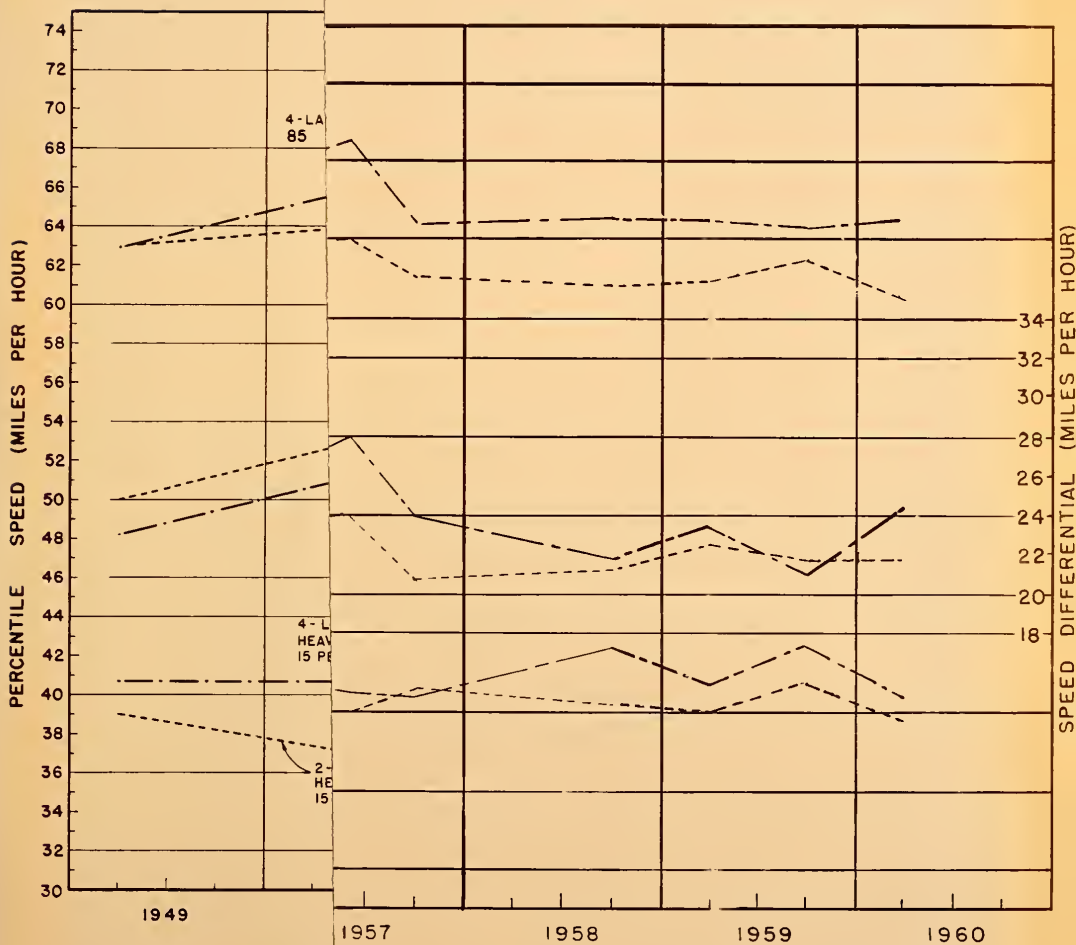


FIG. 7



INDIANA RURAL SPEED TRENDS 1942-1960

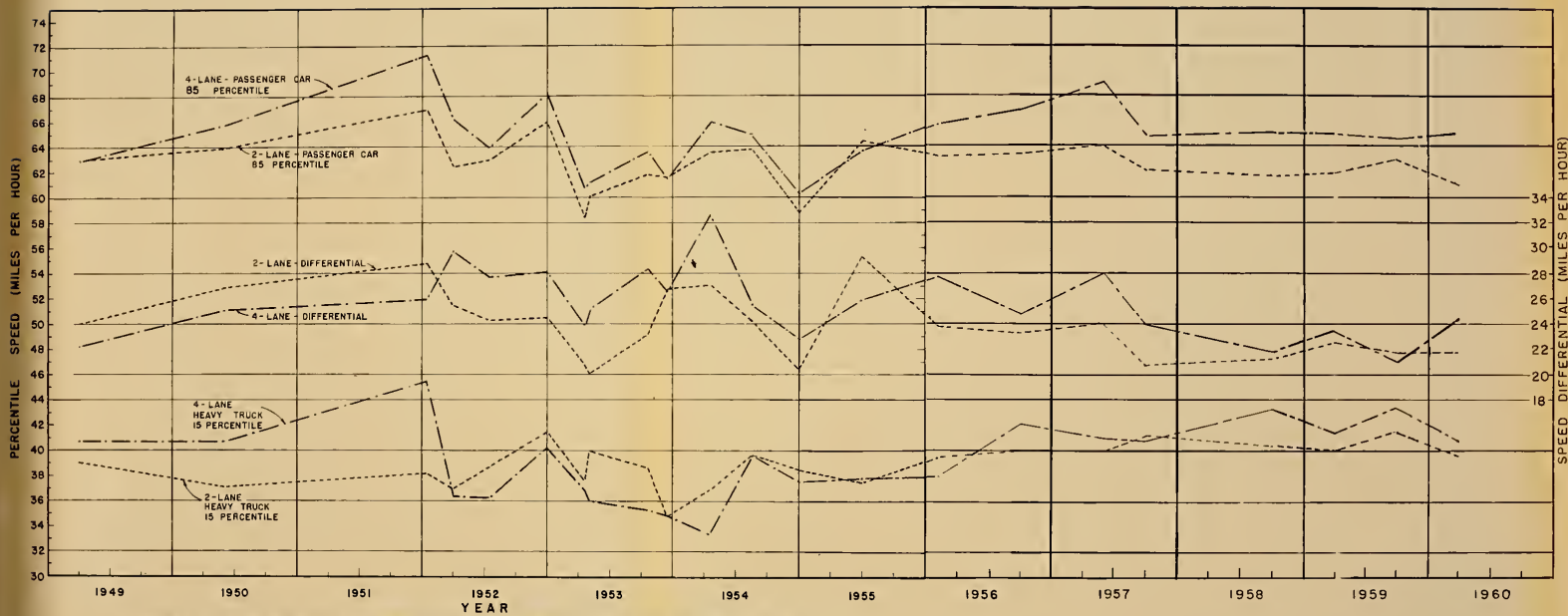




TRENDS

FIG. 8





TRENDS IN PERCENTILE SPEEDS AND SPEED DIFFERENTIAL 1949—1960

FIG. 8

